USSR UDC 665.52

ZHURBA, A. S., SMOL'NIK, Yu. Ye. (deceased), BRYANSKAYA, E. K., and MARTYNYUK, A. D., All Union Scientific Research Institute of Petrochemistry

"Production of Jet Fuel With Improved Qualitative Properties"

Kiev, Neftyanaya i Gazovaya Promyshlennost'", No 4, 1973, pp 36-38

Abstract: Hydrogenation conditions for kerosene fractions 130-180, 130-240 and 180-240°C over aluminum-platinum catalyst AP-56 were investigated. It was established that at 40 atm and 300°C the degree of conversion of mono and bicyclic aromatic hydrocarbons is 90%. The hydrogenation product should be used as the low aromatic component for the production of commercial reactive fuel by mixing it with straight distillate.

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USSR UDC 621.378.32

LINNIK, V. P., Academician, BRYANSKAYA, G. M., and SAPOTNITSKAYA, E. A.

"Interferometer for the Study of Laser Wave Front"

Leningrad, Optiko-mekhanicheskaya promyshlennost' No 11, Nov 71, pp 27-29

Abstract: A modernized interferometer used for the study of laser emission wave front is described, and a schematic diagram of the experimental setup is presented. Investigation of the wave front was carried out on a glass 10 mm in diameter activated by neodium. A long focal length objective (F = 200 mm) disposed at double the focal length from the laser end, produced the image of this end in the plane of observation, while a mirror split the laser flash, directing half of it toward a short focal length objective (F = 30 mm), after which the spherical wave was recorded on the same photofilm. Thus a superposition of two waves occurred in the plane of observation, the one carrying the image of the laser end 10 mm in diameter, having the specific properties of the studied laser emission, the other a small section (1/6 of the diverging wave diameter), which in the first approximation can be considered as reference. The experimental technique is described in detail, and examples of interference bands of two lasers are

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LINNIK, V. P., et al., Optiko-mekhanicheskaya promyshlennost' No 11, Nov 71, pp 27-29

presented. Investigations carried out with this interferometer show that every laser has its own individual emission wave front, and that the interferometer may be used for studying wave fronts of lasers with various wave lengths.

2/2

1/2 012 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--VISCOSITY OF MELTS OF DEFLUORINATED PHOSPHATES -U-

AUTHOR-(03)-OSNACH, A.M., PYORO, L.S., BRYANTSEV, B.A.

COUNTRY OF INFO--USSR

SOURCE--KHIM. PROM. UKR. 1970, (1), 3-5

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PHOSPHATE, FLUORIDE, FLUID VISCOSITY, FERTILIZER PRODUCTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0855 STEP NO--UR/0436/70/000/001/0003/0005

CIRC ACCESSION NO--AP0118031

UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0118031

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE VISCOSITY OF APATITE MELTS WAS MEASURED AT AVRIOUS TEMPS. IN ORDER TO CALC. THE OPTIMAL PARAMETERS FOR FERTILIZER PRODUCTION. DEFLUORINATED APATITE WAS USED BECAUSE SLIGHT CHANGES IN THE F CONTNET CAUSE CONSIDERABLE VARIATIONS IN THE MELT VISCOSITY. F DEPRESSES THE MELTING TEMP. AND MAKES THE MELTS LESS VISCOUS. DEFLUORINATED APATITE M. 1600DEGREES. VISCOSITY CHANGES OF 5-200 P WERE MEASURABLE DURING THE COOLING PROCESS. ADDN. OF 10-12PERCENT SIO SUB2 LOWERS THE MELTING TEMP. TO 1380DEGREES. AT 6 AND 16PERCENT SIO SUB2, THE MELTING TEMP. IS 1500DEGREES. ADDING 10PERCENT H SUB3 PO SUB4 (70PERCENT) LOWERS THE MILTING TEMP. TO 1400DEGREES. DESPIRTE THE CHEAPNESS OF SAND, THE MOST ECONOMICAL ADMIXT. TO THE CONVERTER IS 2-3PERCENT P SUB2 O SUB5 IN THE FORM OF THE ACID TO APATITE ORE CONCENTRATES CONTG. F. FACILITY: INST. GAZA, KIEV, USSR.

UNCLASSIFIED

Acc. Nr. N0100239 Abstracting Service: CHEMICAL ABST. 6-70 Ref. Code UR0062

111856q **Radiation-chemical telomerization of ethylene by methyl formate.** Bryantsev, I. N.; Zagorets, P. A.; Romina, N. N.; Terent'ev, A. B.; Predtima, R. Kh. Inst. Elementoorg. Soedin., Moscow, USSR). *Izv. Akad. Nauk SSSR, Ser. Khim.* 1970, (1), 169-71 (Russ). The telomerization of $H_2C:CH_2$ with HCO_2Me gives $Me(CH_2)_nCO_2Me$ (I) (n = 1, 3, and 5), $HCO_2(CH_2)_nMe$ (II) (n = 2, 4, or 6), a compd. of mol. formula $C_{10}H_{20}O_2$, and $C_2H_{11}CHEtCO_2Me$, whether initiated with *tert*-Bu_2O_2 or γ-irradn. The increase in the reaction temp. increases the yields of I + II (at 125° and 190°, the yields were 0.25 and 7.0% and the *G*-values 0.71 and 20.0, resp.) and the proportion of II in the mixt. increased. The percentages of the products listed above at 125° were 20.1, 27.6, 21.2, 2.5, 4.2, 3.4, 17.0, and 4.0, resp.; and at 190°, 12.6, 19.4, 16.4, 7.8, 15.5, 8.7, 9.4, and 9.7, resp. With *tert*-Bu_2O_2 as initiator, the yield was 24.0% at 140° in 4 hr and the product percentages were 25.9, 20.0, 10.8, 19.4, 9.7, 3.2, 6.2, and 4.3%, resp. CPJR

REEL/FRAME
19841629

1/2 036 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--THE APPLICATION OF MATRICES AND GRAPHS TO THE ANALYSIS OF ULTRA HIGH FREQUENCY DEVICES -U-

AUTHOR-(02)-SILAYEV, M.A., BRYANTSEV, S.F.

COUNTRY OF INFO--USSR

SOURCE--THE APPLICATION OF MATRICES AND GRAPHS TO THE ANALYSIS OF ULTRA HIGH FREQUENCY DEVICES (PRILOZHENIYE MATRITS I GRAFOV K ANALIZU SVCH

DATE PUBLISHED--------70

SUBJECT AREAS--MATHEMATICAL SCIENCES, ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--ELECTRONIC CIRCUIT, ELECTRONIC COMPONENT, ULTRAHIGH FREQUENCY, GRAPH THEORY, GRAPH TECHNIQUE, MATHEMATIC MATRIX, IMPEDACE BRIDGE, COUPLING CIRCUIT, ANTENNA COMPONENT, HANDBOOK

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/1237 STEP NO--UR/0000/70/000/000/0001/0247

CIRC ACCESSION NO--AM0130243

UNCLASSIFIED

2/2 036 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AM0130243
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLE OF CONTENTS: INTRODUCTION 3. BASIC DESIGNATIONS 6. CHAPTER I MATRICES USED IN ESTIMATING THE CHARACTERISTICS OF ULTRA HIGH FREQUENCY DEVICES. ELEMENTS OF THEORY 9. II ORIENTED GRAPHS AND THEIR APPLICATION FOR THE CALCULATION OF THE CHARACTERISTICS OF ULTRA HIGH FREQUENCY DEVICES 50. III CALCULATION OF THE COEFFICIENTS OF REFLECTION AND TRANSMISSION OF CASCADE CONNECTION OF CONCENTRATED NONUNIFORMITIES. ORIENTED GRAPHS OF TRANSITIONS BETWEEN LINES HAVING DIFFERENT WAVE RESISTANCE 73. IV CASCADE CONNECTIONS OF QUADRIPOLES OF ULTRA HIGH FREQUENCY. ERRORS OF MISMATCHING ATTENUATORS 93. V WAVE MATRICES AND ORIENTED GRAPHS OF DIRECTED COUPLERS. DIRECT USE OF BRIDGE DEVICES AND DIRECTED COUPLERS IN THE TECHNOLOGY OF ULTRA HIGH FREQUENCY 115. VI MISMATCH ERRORS IN MEASURING THE POWER OF ULTRAHIGH FREQUENCY WITH THE AID OF DIRECTED COUPLERS, BRANCH BOXES AND TRANSMITTERS CASCADING TO THE CIRCUIT 149. VII THE APPLICATION OF ORIENTED GRAPHS TO THE CALCULATION OF THE CHARACTERISTICS OF DISCRETE PHASE SHIFTERS OF ULTRA HIGH FREQUENCY 170. VIII THE APPLICATION OF ORIENTED GRAPHS TO THE CALCULATION OF THE CHARACTERISTICS OF ANTENNA SWITCHES 199. IX MATRICES AND GRAPHS OF NONRECIPROCAL AND POLARIZATION DEVICES. THE APPLICATION OF THEM TO THE CALCULATION OF THE CHARACTERISTICS OF THESE DEVICES 217. APPENDIX 242. THE BOOK IS DESIGNED FOR ENGINEERS, SCIENTIST DEVELOPING AND INVESTIGATING VARIOUS ULTRA HIGH FREQUENCY DEVICES. EACH CHAPTER HAS A BIBLIOGRAPHY.

UNCLASSIFIED

USSR

UDC 615.31:547.861.37-012.1

(3)

PIS'KO, G. T., NEVSKAYA, T. L., GANUSHCHAK, N. I., BURYAK, V. S., BRUZDEV, A. I., KOSUBA, R. B., KUCHER, V. I., Chernovitskiy Medical Institute

"Synthesis and Pharmacologic Properties of New Derivatives of Piperidine"

Moscow, Khimiko--Farmatsevticheskiy Zhurnal, No 4, 1973, pp 14-17

Abstract: As a result of studying the relation between chemical structure and biological activity in a series of quaternary ammonia compounds, it was concluded [G. T. Pis'ko, "Chromotologic Properties Antimicrobic Effect of Derivatives of Ethylene- and Hexamethylemediamine," Doctor's Dissertation, Chernotsy Dnepropetrovsk, 1965; Farmakol o toksikol, No 5, 1970] that the basic role in the antimicrobic effect of these compounds belongs to the high-molecular alcohol radical which is joined by the ester bond to the quaternary nitrogen atom. A study was made of the synthesis and pharmacological properties of some new derivatives of piperidine containing high-molecular alcohol radicals. For synthesis of N-(4-phenyl-3-methylputene-2-yl-1)-N--carbalkoxymethyl piperidinium chlorides (I-X), the interaction of N-aryl-butenyl derivatives of pure piperidine and esters of monochloroacetic acid were used. On heating in dry diethyl ether, stable, highly water soluble compounds I-X were obtained with good yields.

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PIS'KO, G. T., et al., khimiko-Farmatsevticheskiy Zhurnal, No 4, 1973, pp 14-17

The general effect and toxicity of the compounds were studied on white rats and white mice on intraperitoneal administration. The effects of the compounds on the arterial pressure, respiration and tonus of the third eyelid was studied in acute experiments on cats. Other experiments and the results are described. In studying the antimicrobic properties of the compounds the most sensitive turned out to be staphylococcus aureus and Candida albican fungus. The least sensitive were Vacilous coli, Proteus vulgaris Pseudomas Pyocyanea. When studying the relation between the chemical structure and the antimicrobic effect it was found that the activity appears for $R = {}_1CH_3$; then gradually increases and the maximum effect is observed for $R = C_9H_{19}$.

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USSR

UDC 517.946.2

KOVACH, YU. I., and BRYCH, I.V., Uzhgorod State University

"Approximative Integration of a Boundary Value Problem for a Nonlinear System of Differential Equations with Delayed Argument"

Kiev, Dopovidi Akademii Nauk Ukrains'koi RSR, Seriya A -- Fizyko-Tekhnichni ta Matematychni Nauky, No 11, Nov 70, pp 980-982

Abstract: The article considers the system

$$y_i^{(m_i)}(x) = f_i(x, y_1(x), \ldots, y_r(x), y_1(x-\tau_1(x)), \ldots, y_r(x-\tau_r(x))) \equiv$$
$$\equiv f_i[y_1, \ldots, y_r] \quad (i = 1, 2, \ldots, r),$$

where $m_i = 2k_i$ or $m_i = 2k_i + 1$, k_i are odd numbers, $\tau_i(x) \geq 0$ are continuous functions on the segment $[0, 1]$, with the boundary conditions

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KOVACH, YU.I., and BRYCH, I.V., Dopovidi Akademii Nauk Ukrains'koi RSR, Seriya A -- Fizyko-Tekhnichni ta Matematychni Nauky, No 11, Nov 70, pp 980-982

$$y_i(0) = y_i^{(m_i-2p_i)}(0) = y_i^{(m_i-2p_i)}(1) = 0 \qquad (p_i = 1, 2, \ldots, k_i),$$

$$y_i(x) = \varphi_i(x), \quad x \in E_i = \{x - \tau_i(x) < 0\}, \quad \varphi_i(0) = \varphi_i^{(m_i-2p_i)}(0) = 0,$$

where $\varphi_i(x)$ are known from the class C^{m_i} on the initial set E_i of the initial function. It is shown that the results of the differential inequality theorem, as well as the law of bilateral approximative integration of problem (1), (2) depend on the even or odd parity of k_i, and therefore the two cases must be considered individually. A qualitative evaluation of the solution is given, and a bilateral iterative process of approximative integration is constructed.

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USSR UDC 678.029.5:669

NATANSON, the late E. M., and BRYK, M. T., Institute of Colloid Chemistry and the Chemistry of Water, Academy of Sciences Ukrainian SSR, Kiev

"Metallopolymers"

Moscow, Uspekhi Khimii, Vol 41, No 8, Aug 72, pp 1465-1493

Abstract: The article is a survey of experimental data on methods for the production of metallopolymers, the mechanism for their formation and their properties. The production methods considered are the electrolytic, electroflotation, thermal and mechanochemical methods. There is a detailed discussion of various mechanisms for the interaction on the interface between the surface of particles of metals obtained by such methods and the macromolecules of various polymers, resulting in the formation of metallopolymers. Metallopolymers based on organic high-molecular-weight compounds and on polyheteroorganosiloxanes and polyorganosiloxanes are considered. Attention is also directed to changes in the mechanism and kinetics of polymerization and polycondensation processes in the presence of highly dispersed metals. There is a discussion of the physicochemical properties of metallopolymers (electrical properties, permittivity, catalytic, antifriction, thermomechanical and mechanical properties, swelling, thermal and thermooxidized degradation), as well as possible fields for their use.
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USSR UDC 51

BRYKIN, P. A., and KIMEL'MAN, S. A.

"Mathematical Programming in the Planning of Geodetic and Topographic Work"

Matematicheskoye programmirovaniye v planirovanii geodezicheskikh i topograficheskikh rabot (cf. English above), Moscow, "Nedra," 1972, 230 pp, ill., 87 k. (from RZh-Matematika, No 5, May 72, Abstract No 5V469K)

Translation: Chapter 1. Standard Mathematical-Economic Linear-Programming Models. Chapter 2. Basic Trends and Areas of Application of Methods of Mathematical Economics (ME). Chapter 3. System for Optimal Planning of Enterprise Operation. Chapter 4. Application of ME in the Drafting of Long-Term GUGK [Main Administration of Geodesy and Cartography] Plan. Chapter 5. Employment of Critical-Path Methods in Topographic and Geodetic Production. Chapter 6. Possibilities of Further Employment of ME in Topographic and Geodetic Production. Conclusion.

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USSR UDC: 51

BRYKIN, P. A., KIMEL'MAN, S. A.

"Mathematical Programming in Planning Geodetic and Topographic Projects"

Matematicheskoye programmirovaniye v planirovanii geodezicheskikh i topograficheskikh rabot (cf. English above), Moscow, "Nedra", 1972, 200 pp, ill. 87 k. (from RZh-Kibernetika, No 5, May 72, Abstract No 5V469 K)

Translation: Chapter 1. "Standard Mathematical Economic Models of Linear Programming"; Chapter 2. "Basic Trends in the Area of Using Mathematical Economic Models"; Chapter 3. "Systems for Optimum Planning of the Work of Enterprises"; Chapter 4. "Using Mathematical Economic Methods in Setting up a Long-Range Plan for GUGK [expansion not given]"; Chapter 5. "Use of pert Methods in Topographical-Geodetic Production"; Chapter 6. "Possibilities for Further Use of Mathematical Economic Methods in Topographical-Geodetic Production"; "Conclusion".

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USSR

UDC: 621.373.826:623

BOGDANOV, V. V., BRYKOV, V. G., MATROSOV, V. I., MOCHALOV, A. V., MYNBAYEV, D. K., SAYDOV, P. I., SHCHERBAKOV, Yu. A.

"Fundamental Problems in Developing a Laser Gyroscope"

Izv. Leningr. elektrotekhn. in-ta (News of Leningrad Electrical Engineering Institute), 1972, vyp. 101, pp 69-74 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12D499 [résumé])

Translation: The principal physical relations which define the working characteristic of a gyroscope are examined. Technical requirements are formulated for the elements and parts of a laser gyroscope as implied by these physical relations. The results of an investigation of the zone of capture of the instrument are presented as well as one of the methods of reducing the threshold sensitivity -- Zeeman effect. Bibliography of 3 titles.

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Acc. Nr: AP0049807 Abstracting Service: CHEMICAL ABST. 5/70 Ref. Code: UR0170

104711k Experimental study of the thermal conductivity of organic liquids at low temperatures. Boykov, V. P.; Mukhamedzyanov, G. Kh.; Usmanov, A. G. (Khim. Tekhnol. Inst. im. Kirova, Kazan, USSR). *Inzh.-Fiz. Zh.* 1970, 18(1), 82-9 (Russ)
A device is constructed for the detn. of the thermal cond., λ, of liqs. The thermal cond. of C_3H_8, *n*-butane, *n*-pentane, *n*-hexane, *n*-heptane, *n*-octane, *n*-nonane, *n*-decane, 1-hexene, 1-heptene, MePh, and isoprene are given from their m.p. to 100° above the m.p. The thermal cond. of these liqs. is described by the equations $q/q_{\Delta S} = 2.03\ (S_1-S/R)$ or $\lambda/\lambda_{S_1} = \psi(S/S_1)$, where $q/q_{\Delta S}$ = relative heat flux; $q_{\Delta S}$ = scale heat flux, S and S_1, are current and initial value of entropy and R is the universal gas const.

HMJR

REEL/FRAME
19801729

USSR

UDC: 621.396.6.049.75.002

ORLOV, B. M. and BRYKSIN, V. A.

"Investigating the Influence of Silver Migration on the Technical Parameters and Efficiency of Printing Plates"

Sb. nauch. tr. po probl. mikroelektron. Mosk. in-t elektron. tekhn. (Fiz.-mat. seriya) (Scientific Collection on Problems in Miniature Electronics, Moscow Institute of Electronics Engineering, Physics-Mathematics Series) No 9, 1972, pp 21-25 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10V327)

Translation: Silver migration in printing plates was investigated for various operation modes for the purpose of determining the optimal operating conditions of printing plates. The variation was measured at the time of resistance between conductors. The measurements were made on protected and unprotected plates. It was established that the unprotected plates are low in reliability for all applied voltages and for any practical gaps between conductors. Plates protected by lacquer work dependably for more than 30 days at voltages of less than 27 V for any gaps. One illustration.
N. S.
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1/2 037 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--INTRINSIC CARRIER CONCENTRATION ON HEAVILY DOPED P TYPE GERMANIUM -U-

AUTHOR-(02)-BRYKSIN, V.A., ZEMSKOV, V.S.

COUNTRY OF INFO--USSR

B

SOURCE--FIZIKA I TEKHN. POLUPROV., APR. 1970, 4, (4), 791-793

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--METAL COATING, GERMANIUM SEMICONDUCTOR, ALUMINUM, HALL EFFECT, ELECTRIC CONDUCTIVITY, CARRIER DENSITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/0149 STEP NO--UR/0449/70/004/004/0791/0793

CIRC ACCESSION NO--AP0129405

UNCLASSIFIED

2/2 037 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0129405

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF HEAVY DOPING ON THE INTRINSIC CARRIER CONCENTRATION IN P TYPE GE WAS STUDIED AS A CONTINUATION OF AN EARLIER INVESTIGATION (IBID., 1969, 3, 96) TO HIGHER LEVELS OF DOPING. THE DOPING ADDITIVES ON THIS OCCASION ALSO INCLUDED AL AND AL PLUS GE. THE CARRIER CONCENTRATION WAS DERIVED FROM MEASUREMENTS OF HALL EFFECT AND ELECTRICAL CONDUCTIVITY. DOPING SUBSTANTIALLY INCREASED THE INTRINSIC CARRIER CONCENTRATION (BY A FACTOR OF 3 OR MORE). THE MECHANISM RESPONSIBLE FOR THIS EFFECT IS CONSIDERED.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--MICROLEVEL EXAMINATION OF LOCAL VIBRATIONS IN AN IONIC CRYSTAL IN THE PRESENCE OF A LONG RANGE DEFECT -U-

AUTHOR-(02)-BRYKSIN, V.V., FIRSOV, YU.A.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(4), 1020-7

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--MATHEMATIC EXAPRESSION, VIBRATION SPECTRUM, IONIC CRYSTAL, CRYSTAL LATTICE DEFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/1417 STEP NO--UR/0181/70/012/004/1030/0137

CIRC ACCESSION NO--AP0133369

UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AP0133369
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY CONSIDERING THE EQUATIONS OF MOTION OF AN IONIC LATTICE IN THE ANHARMONIC APPROXN. IN THE PRESENCE OF ELEC. CHARGED DEFECTS, DIFFERENTIAL EQUATIONS WERE OBTAINED THE PROPER VALUES OF WHICH DET. THE SPECTRUM OF FINE LEVELS OF THE LOCAL VIBRATIONS. THE CONSTS. OF THESE EQUATIONS ARE EXPRESSED BY MEANS OF MICROLEVEL PARAMETERS. FACILITY: INST. POLUPROV., LENINGRAD, USSR.

UNCLASSIFIED

1/2 035 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--DEPENDENCE OF THE EXCRETION OF DEOXYURIDINE, THYMIDINE, AND BETA-AMINOISOBUTYRIC ACID BY RATS ON THE DOSE OF IRRADIATION AND TIME

AUTHOR-(03)-MAZURIK, V.K., BRYKSINA, L.YE., BIBIKHIM, L.N.

COUNTRY OF INFO--USSR

SOURCE--RADIOBIOLOGIYA; 10: 43-8 (JAN-FEB 1970).

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--IONIZING RADIATION BIOLOGIC EFFECT, RADIATION DOSAGE, DNA, METABOLISM, NUCLEOSIDE, EXCRETION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/1844 STEP NO--UR/0205/70/010/000/0043/0048

CIRC ACCESSION NO--AP0127254

UNCLASSIFIED

2/2 035 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0127254

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ON THE FIRST DAY AFTER IRRADIATION, THE EXCRETION OF DEOXYURIDINE AND THYMIDINE BY RATS WAS A LINEAR FUNCTION OF THE DOSE IN THE RANGE FROM 50 TO 500 TO 700 R AND WAS EQUALLY GREAT AT HIGHER LEVELS OF RADIATION; THE EXCRETION OF BETA-AMINOISOBUTYRIC ACID DID NOT DEPEND ON THE DOSE. THE AMOUNT OF POST RADIATION HYPEREXCRETION OF THYMIDINE WAS INVERSELY PROPORTIONAL TO THE LOGARITHM OF THE WEIGHT OF THE ANIMALS AND WAS CLOSELY CORRELATED WITH THE POSTRADIATION DECREASE IN THE DNA CONTENT IN THE SPLEEN AND THYMUS. A MATHEMATICAL DESCRIPTION OF THE DEPENDENCE OF THE EXCRETION OF THYMIDINE ON THE WEIGHT OF THE RATS AND DOSE OF WHOLE BODY IRRADIATION IS GIVEN. TWO (DOSE 50 TO 300 R) OR THREE (DOSE MORE THAN 400 R) WAVES OF HYPEREXCRETION OF DEOXYNUCLEOSIDES WERE DETEDTED OVER A PERIOD OF 30 DAYS AFTER IRRADIATION. (TR-AUTH) INST. OF MEDICAL RADIOLOGY, OBNINSK, USSR.

UNCLASSIFIED

USSR

UDC 62-52:656.2-52(082)

BRYLEYEV, A. M. (Editor)

"Elements of New Automation Systems in Railroad Transportation"

Elementy novykh sistem avtomatiki na zheleznodorozhnom transporte (Tr. Mosk. in-ta inzh. zh.-d. transp., vyp. 372) (Elements of New Automation Systems in Railroad Transportation (Works of the Moscow Institute of Railroad Transportation Engineers, vyp. 372)), Moscow, 1971, 277 pp, ill., 1 r. 20 k. (from RZh--Avtomatika, Telemekhanika i vychislitel'naya tekhnika, No 4, Apr 72, Abstract No 4A627K)

Translation: This collection contains 18 papers on new systems in transportation.

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1/2 029 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--THEORETICAL PRINCIPLES OF RAILROAD AUTOMATION AND TELEMECHANICS. SECOND EDITION, REVISED AND SUPPLEMENTED. TEXTBOOK FOR STUDENTS OF
AUTHOR-(05)-BRYLEYEV, A.M., BOSIN, M.I., PEREBOROV, A.S., SMIRNOVA, A.V., EYLER, A.A.
COUNTRY OF INFO--USSR

SOURCE--TEORETICHESKIYE OSNOVY ZHELEZNODOROZHNOY AVTOMATIKI I
REFERENCE--REFERATIVNYY ZHURNAL AVTOMATIKA, NTELEMEKHANIKA I VYCHISLITEL'
DATE PUBLISHED-------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, ELECTRONICS AND ELECTRICAL ENGR.
TOPIC TAGS--AUTOMATION, TELEMETRY EQUIPMENT, RAILWAY TRANSPORTATION, MONOGRAPH, TRANSDUCER, ELECTRIC RELAY, RELIABILITY, COMMUNICATION SYSTEM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0778 STEP NO--UR/0000/70/000/000/0000/0000

CIRC ACCESSION NO--AR0126469
UNCLASSIFIED

2/2 029 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AR0126469

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS TEXTBOOK CONSISTS OF 23 CHAPTERS. 1. GENERAL CHARACTERISTICS, INDICATORS AND REQUIREMENTS PLACED ON AUTOMATION, TELEMECHANICS, AND COMMUNICATIONS ELEMENTS. 2. TRANSDUCERS. 3. TYPES OF RELAYS AND THEIR ACTUATING PARTS. 4. ELECTROMAGNETIC DC RELAYS. 5. TRANSIENT PROCESSES IN ELECTRO MAGNETIC RELAYS. 6. POLARIZED RELAYS. 7. AC RELAYS. 8. MAGNETIC ELEMENTS. 9. LOGICAL CONTACTLESS ELEMENTS. 10. BOOLEAN ALGEBRA. SYNTHESIS OF COMBINATION AUTOMATA. 11. SYNTHESIS OF FINITE AUTOMATA. 12. PRINCIPLES OF SELECTION. 13. PRINCIPAL UNITS OF TELEMECHANICAL SYSTEMS. 14. PROBLEMS OF INTERFERENCE STABILITY IN REMOTE CONTROL AND REMOTE SIGNALLING SYSTEMS. 15. TELEMETRY. 16. TYPES OF AUTOMATION. 17. PRINCIPLES OF AUTOMATIC CONTROL. 18, STATIC CHARACTERISTICS OF LINEAR ELEMENTS AND SYSTEMS. 19. DYNAMICS OF LINEAR AUTOMATIC CONTROL SYSTEMS. 20. EQUATIONS OF COMPONENTS AND AUTOMATIC CONTROL SYSTEMS. 21. STABILITY. 22. SYNCHRONOUS COMMUNICATIONS SYSTEMS. 23. RELIABILITY OF ELEMENTS AND SYSTEMS OF RAILROAD AUTOMATION AND TELEMECHANICS. 254 ILLUSTRATIONS, 61 TABLES.

UNCLASSIFIED

USSR B UDC 656.25.001(047)

BRYLEYEV, A. M., BOSIN, M. I., PEREBOROV, A. S., SMIRNOVA, A. V., EYLER, A. A.

"Theoretical Principles of Railroad Automation and Telemechanics. Second Edition, Revised and Supplemented. Textbook for Students of Railroad Transport Institutes"

Teoreticheskiye Osnovy Zheleznodorozhnoy Avtomatiki I Telemekhaniki (English version above) (from Referativnyy Zhurnal Avtomatika, Telemekhanika I Vychislitel'naya Tekhnika, No 2, 1970, Abstract No 2A652K by I. Sh.)

Translation: This textbook consists of 23 chapters. 1. General characteristics, indicators and requirements placed on automation, telemechanics, and communications elements. 2. Transducers. 3. Types of relays and their actuating parts. 4. Electromagnetic DC relyas. 5. Transient processes in electro-magnetic relays. 6. Polarized relays. 7. AC relays. 8. Magnetic elements. 9. Logical contactless elemnts. 10. Boolean algebra. Synthesis of combination automata. 11. Synthesis of finite automata. 12. Principles of selection. 13. Principal units of telemechanical systems. 14. Problems of interference stability in remote control and remote signalling

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BRYLEYEV, A. M., et al., Teoreticheskiye Osnovy Zheleznodorozhnoy Avtomatiki I Telemekhaniki (from Referativnyy Zhurnal Avtomatika, Telemekhanika I Vychislitel'naya Tekhnika, No 2, 1970, Abstract No 2A652K by I. Sh.)

systems. 15. Telemetry. 16. Types of automation. 17. Principles of automatic control. 18. Static characteristics of linear elements and systems. 19. Dynamics of linear automatic control systems. 20. Equations of components and automatic control systems. 21. Stability. 22. Synchronous communications systems. 23. $R_e$liability of elements and systems of railroad automation and telemechanics. 254 illustrations, 61 tables.

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AA0052392 BRYLEYEV A.M.

Soviet Inventions Illustrated, Section II Electrical, Derwent, UR 0482

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240735 DIGITAL CODE TRACK CIRCUIT includes circuits 1 & 2 fed by generator 2, pulse relay 3, synchronising unit 5, delay circuit 6, pulse control unit 7 for the generator, decoder 8, filter 9, transmitter 10 and signal relays 11 & 12. The track circuit is fed with contacts of relays 4 and 6 closed Commutator 7 is operating when the track circuit carries current, and breaks the supply of relays 4 & 6. The delay circuit permits the required pulse duration in circuit 1 to be maintained.

8.12.67 as 1202177/18-24. A.M. BRYLEEV et alia. MOSCOW INST. OF RAILWAY ENGINEERS (14.8.69) Bul 13/1.4.69. Class 20i. Int.Cl. B 61l.

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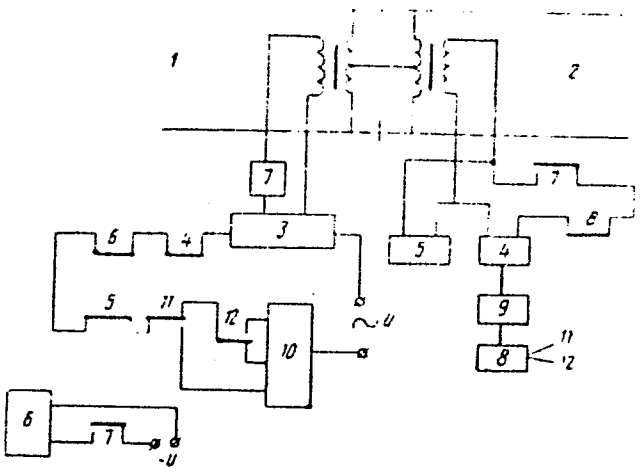

Bryleyev, A. M.; Maslyukov, O. A.; Dmitrenko, I. Ye.; Stepenskiy, B.M.
Moskovskiy Institut Inzhenerov Zheleznodorozhnogo Transporta

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AA0051771 BRYLYAKOV UR 0482 G.I.

Soviet Inventions Illustrated, Section II Electrical, Derwent, 1/70

237286 DETERMINATION OF CHEMICAL ELEMENTS BY X-RAY RADIATION measurements is made more accurate by reducing the effects of material composition and the safety of work is increased. Photoelectronic multiplier (2) and a thin crystal NaI(Tl) (3) are situated in housing (1). Thin-walled window enables the penetration of soft X-ray and beta radiation to the crystal. The holder of filter (6) can be moved horizontally in three different positions by which two balanced differential filters or free access can be placed against the window. Soft beta radiation source (9) is placed in sockets (8) and hard beta radiation is provided by source (10). Both sources are surrounded by screens (11,12). Selector (13) and its aperture (14) can be turned by handle (15). In one position of the selector the aperture is set against one radiation source while

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the other is covered. The instrument is placed on the sample and set to soft beta radiation while one of the balanced filters is employed. The characteristic X-ray radiation generated in the sample returns to the instrument via the filter and is registered by the counter. The measurement is repeated with the other filter and the difference in readings is noted. This is followed by irradiation by the hard beta source and no filter.

18.8.66 as 1098697/26-25. S.L.YAKUBOVICH et alia. MINERAL RAW MATERIALS RES. INST. (10.7.69.) Bul 8/ 12.2.69. Class 21g. Int.Cl.H 05d.

AUTHORS: Yakubovich, S. L.; Zaytsev, Ye. I.; Brylyakov, G. I.

Vsesoyuznyy Institut Mineral'nogo Syr'ya

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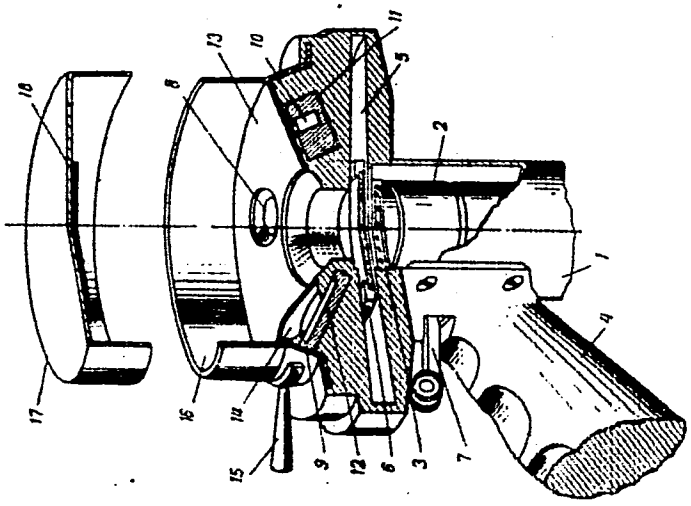

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USSR

UDC 621.762.001:669.295

OGNEV, R. K., BRYNDIN, V. G., TER-POGOSYAN, E. D., KOLOMOYETS, G. G., and PEREVYAZKO, A. I.

"Study of the Process of Oxidation of Cermet Titanium Specimens"

Sb. tr. Vses. n.-i. i proyektn. in-t titana (Collection of works of the All-Union Scientific Research and Design Institute of Titanium), 1970, 5, pp 81-85 (from RZh-Metallurgiya, No 11, Nov 70, Abstract No 11G307)

Translation: Together with oxidation, compaction of specimens takes place. The rate of oxidation of porous Ti specimens at temperatures higher than $\alpha \rightleftarrows \beta$-transformation of Ti is inhibited and the intensity of compaction increases. 3 ill. Author's abstract

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USSR UDC 621.771.073.8.9

KREKNIN, L.T., SHAVRIN, O.I., TREFILOV, V.G., DMITROV, L.N., BRYUKHIN, V.V., and TOKAREV, P.S., Izhevsk Metallurgical Plant

"Thermomechanical Treatment of Cold Rolling Rollers"

Moscow, Metallurg, No 9, Sep 71, pp 31-32

Abstract: A method of high-temperature thermomechanical treatment of cold rolling rollers 80-90 mm in diameter is described. The HRC hardness obtained is not less than 60-62 and the depth of the hardened layer is about 4-5 mm. By varying process parameters, any desired layer depth can be obtained. A comparison of microstructures of samples after thermomechanical treatment at a depth of 5 mm and after conventional high-frequency hardening at 1.5-3 mm shows that in the latter case the martensite needles are smaller.

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USSR

UDC 620.193.41

KORNILOV, I. P., BRYNZA, A. P., BORISKINA, N. G., and ZABRODSKAYA, M. N., Dnepropetrovsk State University and Institute of Metallurgy, Academy of Sciences USSR

"Effect of Long-Time Oxidation at 600°C on the Corrosion and Mechanical Properties of Titanium"

Moscow, Zashchita Metallov, Vol 9, No 6, 1973, pp 705-707

Abstract: VT1-0 titanium samples were heated at 600°C for periods of 25 to 1000 hours, cooled and weighed. Depth of oxidation penetration was measured by microhardness. Corrosion behavior was determined by placing samples in boiling solutions of 10% H_2SO_4, 1% oxalic acid, and 20% HCl for six hours and in 40% H_2SO_4 at 20°C for 2,250 hours. Up to 1000 hours the oxidation process was found to follow the parabolic law and the oxide film grew to 20 microns in thickness. Samples oxidized for 500-1000 hours possessed good corrosion resistance where the rate of corrosion in 10% H_2SO_4 was almost 300 times less than the unoxidized samples. Samples oxidized at 600°C for 25-1000 hours were thoroughly stable at 20°C in 40% H_2SO_4 for the test time of 2,550 hours. 2 figures, 1 table, 6 bibliographic references.

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USSR

UDC: 669.295.476

BRYNZA, A. P., DANILOVA, L. M.

"Cathodic Behavior of Alloys in the Titanium-Oxygen System in Sulfate Solutions"

Vopr. Khimi i Khim. Tekhnol. Resp. Mezhved. Temat. Nauch.-Tekhn. Sb. [Problems of Chemistry and Chemical Technology. Republic Interdepartmental Thematic Scientific and Technical Collection], 1973, No 28, pp 112-118 (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8G215, by G. Svodtseva).

Translation: The study of the system Ti-O_2 with O_2 content up to 35 at. % by methods of physical-chemical analysis showed that together with interstitial solid solutions, the suboxide compounds Ti_6O, Ti_3O and Ti_2O are formed. The Ti-O_2 alloys studied in sulfate solutions are more effective cathodes than Ti iodide. The molarization curves show a wave illustrating the limiting current preceding the liberation of H_2. The height of the wave depends on the concentration of O_2 in the Ti, pH of the solution, and rate of linear potential scanning. The limiting current is influenced by the thickness and composition

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Brynza, A. P., Danilova, L. M., Vopr. Khimi i Khim. Tekhnol. Resp. Mezhved. Temat. Nauch.-Tekhn. Sb., 1973, No 28, pp 112-118.

of the oxide film on the electrode. The process of reduction of the oxide film to the Ti_3O suboxide is greatly facilitated and hydride formation can occur directly on the surface of an oxide-free specimen. The anode-grown film has variable O_2 content, pores and defects. Cathodic processes on Ti hydrides and suboxides differ as to H_2 liberation potential and shape of the anode branches of the curves. The hydride-formation reaction on Ti_3O suboxide is limited by the stage of H_2 ion discharge. 5 figures, 11 biblio. refs.

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USSR

UDC: 669.29.295:669.094.3:620.17

KORNILOV, I. I., BORISKINA, N. G., ZABRODSKAYA, M. N., BRYNZA, A. P., Institute of Metallurgy imeni A. A. Baykov

"Influence of Long-term Oxidation on the Mechanical Properties of Titanium"

Metallovedeniye i Termicheskaya Obrabotka Metallov, No 10, 1973, pp 5-6.

Abstract: This work presents a study of the dependence of the mechanical properties of VT1-0 titanium on temperature of oxidation in air (from 600 to 800° C) and holding time (from 25 to 750 hours). Strength, ductility and impact toughness were studied using two to three parallel specimens at room temperature. It is established that long-term oxidation at 600° C, forming a shining oxide film of dark-grey color, causes no significant increase in strength or yield point, while relative elongation at rupture does not change at all.

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USSR

UDC: 620.198

SHAPOVALOV, V. P., GORBUNOV, N. S., BRYNZA, A. P., FEDASH, V. P., LEGASHOVA, T. P.

"Corrosion Resistance and Electrochemical Behavior of Titanium Coatings"

Moscow, Zashchita Metallov, Vol 9, No 3, Jul-Aug 73, pp 465-467.

Abstract: The corrosion and electrochemical behavior of diffusion titanium coatings was studied in acid, alkaline and organic media. The corrosion tests and studies of electrochemical behavior of titanium coatings produced from the vapor phase in a vacuum showed that diffusion titanium coatings can protect iron-carbon alloys from the effects of certain corrosive media. The resistance of type 3 steel, titanium coated, with exposures of up to 450 hours, is significantly higher than that of carbon steel and stainless steels, and in many cases is equal to the resistance of titanium alloys.

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UDC 620.193.4:669.29

BRYNZA, A. P., GERASYUTINA, L. I., BAYBAROVA, YE. YA., Dnepropetrovsk State University

"Corrosion Behavior of Titanium in Dimethylformamide"

Moscow, Zashchita Metallov, Vol 8, No 6, 1972, pp 705-707

Abstract: A theoretical and experimental study was made of the corrosion and electrochemical behavior of titanium in solutions of dimethylformamide. The corrosion tests were performed by the gravimetric method [A. P. Brynza, et al., Zh. prikl. khimii, No 35, 683, 1962], and the electrochemical tests were made by the method of taking the polarization curves under potentiodynamic conditions [L. I. Gerasyutina, et al., Zh. prikl. khimii, No 36, 2005, 1963] with a mean rate of variation of the potential of three volts/hour in the temperature range of 40, 60, 70, and 80°. The gravimetric tests lasted 3 hours.

For all the investigated temperatures, titanium did not dissolve noticeably in dimethylformamide. Solutions of H_2SO_4 in dimethylformamide were aggressive. The corrosion rate V as a function of the temperature in a 4 normal solution of H_2SO_4 in dimethylformamide is subject to the Arrhenius equation, and in the lg V -- 1/T coordinates it has a rectilinear nature. The effective

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BRYNZA, A. P., et al, Zashchita Metallov, Vol 8, No 6, 1972, pp 705-707

activation energy for the titanium corrosion process found from the experimental curve is 18.2 kcal/mole which indicates the electrochemical control of the process. Paranitroanaline (to 40 grams/liter), katapine A (to 10 grams/liter), and utropine (to 2 grams/liter) were tested as titanium corrosion inhibiters in 4 normal H_2SO_4 in dimethylformamide, but only urotropine was effective. Addition of 0.5% water to the electrolyte has little effect on the process of active solution of titanium, but addition of 1% water changes the nature of the polarization curve. The data indicate that the solution of the titanium in the active state takes place with the participation of water molecules. Passivation of the titanium in acid solutions is the result of interaction of the metal with the water molecules. The urotropine increases the cathode and anode polarization of the titanium, that is, it is a mixed inhibitor with predominant effect on the anode process.

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USSR

UDC 620.193

BRYNZA, A. P., KOSOLAPOVA, T. YA., KHMELOVSKAYA, S. A., FEDORUS, V. B., and SIMONOVA, YE. K., Dnepropetrovsk State University and Institute of Problems of Material Science, Academy of Sciences Ukrainian SSR

"Corrosion Resistance of Titanium Carbide Powders"

Kiev, Poroshkovaya Metallurgiya, No 8, 1971, pp 67-72

Abstract: The decomposition kinetics of titanium carbide were studied in the region of homogeneity in mixtures of sulfuric acid (from 0.5 to 10 geq/l) with hydrogen peroxide (from 1.08 to 6.44 geq/l) at 25-80°. The carbides were prepared in a laboratory vacuum furnace (10-3 mm Hg) with a slow temperature rise (for 30-40 minutes) to 1500-1600°, with subsequent exposure at this level for 2 hours. The mean particle size of carbide powder was 15 microns. In the corrosion testing, all carbide phases completely decompose when maintained in a solution containing 10 geq/l H_2SO_4 and 6.44 geq/l H_2O_2 for 120 hours at 25°. With temperature rise, the time required for total decomposition was reduced to 10 hours at 40°, 6 hours at 60°, and 2 hours at 80°. When the concentration of sulfuric acid was increased from 0.5 to 5 deq/l, the rate of dissolution of titanium carbides was reduced, and when the acid content was varied from 5 to 10 geq/l, the rate of decomposition did not depend on solution acidity. When the hydrogen peroxide content was increased, the rate of decomposition of the titanium carbides rose. When the carbon content in titanium

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BRYNZA, A. P., et al, Kiev, Poroshkovaya Metallurgiya, No 8, 1971, pp 67-72

carbide was increased, the decomposition rate declined. That is, the more defect-free the carbide is relative to carbon, the higher is its resistance in a mixture of sulfuric acid and hydrogen peroxide.

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UDC 669.018.8:669.29

BRYNZA, A. P., PASTUKHOVA, O. M., and KAPLINA, G. S., Dnepropetrovsk State University, Academy of Sciences UkrSSR, and Institute of the Problems of Material Science

"Investigation of the Corrosion Resistance of Nitrided Titanium"

Moscow, Zashchita Metallov, Vol 7, No 4, Jul-Aug 71, pp 466-468

Abstract: The effect of chemico-thermal processing by nitration on the corrosion resistance of VT1-1 and OT-4 titanium alloys in solutions of sulfuric acid, hydrochloric acid, nitric acid, and potassium hydroxide acid was investigated on 15 x 20 mm specimens, 0.4 and 0.9 mm thick, placed in a quartz vessel through which was passed nitrogen of high frequency. The corrosion was investigated by roentgenostructural, metallographic, and gravimetric analyses. The results are discussed by reference to tabulated data of corrosion rates and the microstructure of the VT1-1 alloy. Nitrided Ti-specimens showed no corrosion signs in solutions of 31% HCl, but they had a weight increase of 0.004 g per specimen. Their nitride layer was not disrupted, but was slightly dark, probably due to the development of oxide layers on its surface. One illustr., two tables, seven biblio. refs.

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UDC 539.23

BRYUZA, A. P., KHMELOVSKAYA, S. A., and ZHUNKOVSKIY, G. L., Dnepropetrovsk, Kiyev

"Investigation of Production Conditions and Some Properties of Carbide Coatings on Titanium"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 6, Nov/Dec 71, pp 80-83

Abstract: A study was made of the growth kinetics and phase composition of carbide diffusion coatings on titanium by vacuum saturation and of their corrosion resistance in solutions of sulfuric acid, hydrochloric acid, and nitric acid. The parameters of reaction diffusion of C into titanium were calculated and the temperature dependence of the diffusion coefficient $D=77.8 \cdot \exp(-81000/RT)$ cm^2/sec and the optimum method (pressure 1.10^{-2}mm Hg column and lower, saturation time 3-5 hrs at 1,300°C) for producing a qualitative carbide coating were determined. It was found that carbide coats produced in the filling of carbon black in vacuum are more corrosion resistant than coatings obtained in an similar charge in a hydrogen resistant which is a result of the high density and purity of the developing carbide layer. Three illustrations, 12 bibliographic references.

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USSR

UDC 621.762

BRYNZA, A. P., OGNEV, R. K., RYNSKAYA, Ye. S., PATRUSHEVA, A. G., KOLOMOYETS, G. G., SOROKINA, Z. Ye., and TER-POGOSYAN, E. D.

"Corrosion of Powder Metallurgy Titanium in a Damp Atmosphere Containing Hydrogen Chloride and in Solutions of Hydrochloric Acid"

Moscow, Metallurgiya i Khimiya Titana (Institut Titana), Metallurgiya Publishing House, Vol 6, 1970, pp 105-111

Translation: The corrosion behavior of powder metallurgy titanium in gases and solutions of hydrochloric acid within the temperature interval 20-80°C is investigated. It is established that at a temperature of 20°C, atmospheric corrosion of powder metallurgy titanium above 3 and 7% solutions of hydrochloric acid is not observed, and in a solution of hydrochloric acid with a concentration up to 10%, slight corrosion is observed after a certain induction period. At 80°C, powder metallurgy titanium corrodes with all concentrations of hydrochloric acid that were studied. The effective energy for activating the process of dissolving titanium specimens is 62.8-71.2 kilojoules per mole. Seven illustrations, one table, and 11 bibliographic entries.

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USSR UDC 620.193.01

ARENSBURGER, D. S., PUGIN, V. S., BRYNZA, A. P., KOLOMOYETS, G. G., and PATRUSHEVA, A. G., Dnepropetrovsk State University, All-Union Scientific Research and Design Institute for Titanium, Zaporozhe, Institute of Problems of Material Science, Academy of Sciences UkrSSR

"The Corrosion Behavior of Titanium Cermets in Mineral Acid Solutions"

Poroshkovaya Metallurgiya, No 4(100), Apr 71, pp 74-80

Abstract: Porous cermet materials having developed surfaces are subject to corrosion both externally as well as internally, which causes a deterioration in the physical-chemical properties. Study was made of the corrosion resistance of titanium cermets in hydrochloric and sulfuric acids solutions at temperatures of 20-80°C. The samples were prepared from titanium powder with a particle size range of -0.25 + 0.1 mm and -0.18 + 0 mm. The titanium powders were prepared by hydrogenation with subsequent degassing of the melt and by elecgrolytic refining of the waste titanium sponge. One set of samples was pressed under a pressure of 1.5 T/cm^2 and sintered at 1150° in pure argon for two hours. The other samples were sintered in vacuum at 1100°C for one hour. The specific surfaces of the 20% and 40% porous samples were determined and found to be 0.17 and 0.455 m^2/g, respectively.

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ARENSBURGER, D. S., et al., Poroshkovaya Metallurgiya, No 4(100), 1971, pp 74-80

Corrosion tests with sulfuric acid (5-91%) were carried out by incubating the samples at 40-80°C for 4-5 hours and at 20-30°C for 12-14 hours. Velocity of corrosion was found to be independent of time. A curve of the relation of the velocity of corrosion to acid concentration shows two maxima which correspond to 20 and 78% sulfuric acid; a minimum occurs at 50-60% sulfuric acid while with concentrations above 78%, the velocity decreases significantly. Titanium cermets have little stability in sulfuric acid and the use of nitric acid as an inhibitor gave almost complete protection.

Titanium cermets were stable at 20°C to 3% HCl; at increased concentrations, the corrosion increased rapidly. Comparison of results with both hydrochloric and sulfuric acids showed that the velocity of corrosion is inhibited by the presence of the Cl^- ion and activated by the $SO_4^=$ within a fixed time. At increased acidities, this is reversed and can be explained by the fact that the titanium sulfate which is deposited on the surface as a corrosion product is insoluble and prevents further degeneration.

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UDC: 66 - 620.193

BRYNZA, A.P., GERASYUTINA, L.I., and FEDASH, V.P., Dnepropetrovsk State University imeni 300th Anniversary of the Union of Russia and the Ukrain, Dnepropetrovsk, Ministry of Higher and Secondary Specialized Education Ukrainian SSR

"Protective Action of Katapine A in Titanium Corrosion in Hydrochloric Acid"

Kiev, Ukrainskiy Khimicheskiy Zhurnal, Vol 36, No 4, Apr 70, pp 397-400

Abstract: The authors studied the effect of Katapine A (alkylbenzylpyridinium chloride), an inhibitor of the corrosion of titanium, in 5 and 10 N HCl solution at 20-80°. By chemosorption on the surface of titanium, Katapine A slows down the rate of electrochemical reaction of the corrosive process. Appearance of the chemosorption layer aids in the inhibition of the corrosion of the metal surface by adsorptive-chemical reaction with water oxygen.

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USSR

UDC 620.193.5:669.295

KORNILOV, I. I., BRYNZA, A. P., BORISKINA, N. G., and ZABRODSKAYA, M. N., Academy of Sciences USSR, Institute of Metallurgy imeni A. A. Baykov

"Investigation of the Kinetics of Prolonged Atmospheric Oxidation of Titanium"

Moscow, Zashchita Metallov, Vol 9, No 1, Jan-Feb 73, pp 77-79

Abstract: A study was made of the kinetics of prolonged (25-1000 hrs) atmospheric oxidation of technically pure titanium (VTI-0 brand) at 700 and 800°. The parabolic mass increase with time in atmospheric oxidation at 700-800°, maintained during the full investigation time, is satisfactorily described by the exponential equations $\Delta q^{1.7} = 7.3 \cdot 10^{-7} \tau$ and $\Delta q^{1.4} = 7.2 \cdot 10^{-5} \tau$, for 700 and 800°, respectively. The oxide film developing on titanium at 700° becomes brittle after 500-1000 hrs of oxidation and it crumbles with cooling. At 800° and over 250 hrs of oxidation, the scale is firmly bound to the base and, in all probability, sufficiently dense diffusion layers between the titanium and its scale are formed. The character of the microhardness dependence on the depth of the oxidized layer is discussed by reference to diagrams of gas-saturated layers of titanium at 700 and 800°. Two figures, one table, fourteen bibliographic references.

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BRYSKIN, V. V., Physicotechnical Institute imeni A. F. Ioffe, Academy of Sciences USSR, Leningrad

"Conductivity of Semiconductors in a High Electric Field"

Leningrad, Fizika Tverdogo Tela, Vol 14, No 10, Oct 72, pp 2902-2908

Abstract: In previous articles the author developed a new method for calculating the current in semiconductors in the presence of a high electric field. In the present article a new expression for current is obtained from the formula

$$j_x = en \sum_{k'_\perp, k_\perp, x_m} n(k'_\perp) X_m W^{x_0, x_m}_{0, x'_m}(k'_\perp, k_\perp), \qquad (1)$$

The new expression has certain advantages over previously obtained expressions for current. First, it easily permits a description of the transition to the

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BRYSKIN, V. V., Fizika Tverdogo Tela, Vol 14, No 10, Oct 72, pp 2902-2908

weak field limit, given arbitrary force of the electron-phonon interaction. Second, it is more convenient to use this expression in some cases for concrete current calculations in a system in an electric field of arbitrary magnitude. Such cases, for example, include the calculation of the current in narrow-band semiconductors. A particular case of such a situation is the calculation of the current in a high field in the model of a small-radius polaron. In addition, the proposed procedure for transition to the weak field limit makes it possible to express the so-called angular parts, which figure in a generalized kinetic equation and which occur when untangling the Kubo formula by the KONSTANTINOV-PEREL' method. This angular part is related to the decomposition of the current correlator in the Kubo formula on the imaginary part of the contour in a complex time plane and is formally related to the concrete form of the density matrix at the initial moment of time. It is shown that the angular part can be expressed through transition probabilities under conditions of the presence of weak spatial dispersion. On the one hand, such a relation provides a new method for calculating the angular

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BRYSKIN, V. V., Fizika Tverdogo Tela, Vol 14, No 10, Oct 72, pp 2902-2908

part in a generalized kinetic equation, and on the other hand it indicates that the current expression (i.e., the Kubo formula) is independent of the form of the initial distribution.

The author thanks YU. A. FIRSOV for interesting discussions.

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UDC 632.95

BEZOBRAZOV, Yu. N., BRYSOVA, V. P., and GUKOVA, R. A.

"New Fungicides -- Derivatives of Dithiocarbamic Acid"

"Zh. Organ. Khimii" (Hournal of Organic Chemistry, Vol 7, No 11, 1971; pp 2282-2285) (Translation from Referativnyy Zhurnal Khimiya, No 8, Moscow, 1972, No 8 N607)

Translation: Active fungicides of the general formula ROC(O)-SC(S)NR'R" (I) (R = alkyl, naphthyl, aryl, aralkyl; R'=alkyl, CH_2CH_2CN; R"=H, or alkyl are produced by reaction of the sodium salts of derivatives of dithiocarbamic acid with chlorocarbonates. To 122.5 gm iso-PrOCOCL in 80 gm acetone is added a 40% aqueous solution of 143 gm of $NaSC(S)N(Me)_2$ at 10-15°. At the same temperature, the mixture is stirred for 40 minutes, filtered, the residue washed with water until it gives a negative reaction to Cl^-, and dried at 30°. The yield was 192 gm of (I) (R = iso-Pr, R' = R" = Me), mp 61-2° (ether). Also produced were I (shown are R, R', R", yield in %, mp in °C): 1-$C_{10}H_7$, Me, H, 74, 93-4; 1-$C_{10}H_7$, Me, Me, 98.5, 63-4; 1-$C_{10}H_7$, Et, Et, 94.5, 95-6; 1-$C_{10}H_7$, CH_2CH_2CN, CH_2,CH_2CN, 77.2, 121-2; 2-$C_{10}H_7$, Me, Me, 97.2, 105-6; m-C_6H_4Me, Me, H, 58.5, 36-7; m-C_6H_4Me, Me, Me, 85.3, 71-2; m-C_6H_4Me, Et, Et, 95.6, 36-7; p-C_6H_4Me, Me, H, 78, 84-5; p-C_6H_4Me, Me, Me,

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BEZOBRAZOV, Yu. N., et al., "Zh. Organ. Khimii" (Journal of Organic Chemistry, Vol 7, No 11, 1971; pp 2282-2285) (Translation from Referativnyy Zhurnal Khimiya, No 8, Moscow, 1972, No 8 N607)

86.1, 104-5; p-C_6H_4Me, Et, Et, 84.5, 46-7; o-C_6H_4Me, Me, H, 58.6, 68-9; O-C_6H_4Me, Me, Me, 90, 62-3; o-C_6H_4Me, Et, Et, 92.2, 56-7; p-$ClC_6H_4CH_2$, Me, Me, 78.6, 52-52.5; Me, Me, H, 73, 30-1; Me, Me, Me, 83.3, 7-8.5; Me, Et, Et, 85.3, 18-9; 2,4,5-$Cl_3C_6H_2$, Me, Me, 76.2, 10-3; 2,4,6-$Cl_3C_6H_2$, Me, Me, 75.3, 94-5; 3,4-$Cl_2C_6H_3CH_2$, Me, Me, 92.5, 84-5; Me, CH_2CH_2CN, H, 67.7, 67-8; CH_2Cl, CH_2CH_2CN, H, 32, 87.5-88.5; iso-Pr, Et, Et, 46.7, 90-1; Bu, Me, Me, 95.1, 25-7; sec-Bu, Me, Me, 95.8, 13.5-14.5; Ph, Me, Me, 92, 99-100; C_6Cl_5, Me, Me, 43.6, 120 (variable); o-$C_6H_4NO_2$, Me, Me, 93.6, 79-80; $PhCH_2$, Me, Me, 53.4, 65-6.

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USSR

UDC 547.496.2

BEZOBRAZOV, YU. N., BRYSOVA, V. P., and GUKOVA, R. A.

"Novel Fungicides - Derivatives of Dithiocarbamic Acid"

Leningrad, Zhurnal Organicheskoy Khimii, Vol 7, No 11, Nov 71, pp 2282-2285

Abstract: Derivatives of dialkyldithiocarbamic acid -- alkyl(aryl)-hydroxycarbonyldithiocarbamates were synthesized. These products exhibit fungicidal activity. To 122.5 g isopropylchlorocarbonate in 80 g acetone, 143 g of a 40% aqueous suspension of sodium dimethyldithiocarbamate is added gradually with vigorous stirring at 10-15°. Then the reaction mass is stirred for 40 min at the same temperature. The yellow solid which precipitates is washed with water until a negative reaction for chloride ions is obtained, and then dried at 30°. The yield of isopropoxycarbonyl-N,N-dimethyldithiocarbamate, m.p. 61-62° is 92%. Other derivatives were synthesized in an analogous manner. The fungicidal and bactericidal activity exhibited by these compounds is accompanied by low toxicity towards warm-blooded animals.

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USSR UDC 612.823.5

BRYTVAN, Ya. M., VIYEVS'KIY, M. A., KROKHMAL', S. S., MAKAROVA, Z. O., NIKIFOROVA, I. P., POPLAV'SKA, L. I., and SLOVODYANYUK, Chair of Pathological Physiology, Vinnitsa Medical Institute

"Functional Response of Different Sections of the Brain to Extreme Stimuli"

Kiev, Fiziologicheskiy Zhurnal, No 5, 1972, pp 644-653

Abstract: Experiments on cats and rabbits showed that electrical activity of the cortex and subcortex, respiration, and arterial pressure are dependent on the original and present functional state of the nervous system. The effects of prolonged compression of soft tissues, increased intracranial pressure, alcoholic intoxication, asphyxia, blood loss, and various forms of hypertension were studied. Functional shifts were induced by preliminary injection of amphetamine sulfate or chlorpromazine, electrocoagulation of the anterior hypothalamus, and denervation of the sinocarotid and aortic vascular zones. Along with generalized and phasic reactions of electrical activity, cortical-subcortical dissociations occurred with signs of induction of the adjacent regions. A stress rhythm appeared quite often in the diencephalon and brainstem. The onset and course of the experimental pathology and accompanying electrical activity were dependent on both the original and

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USSR

BRYTVAN, Ya. M., et al., Fiziologicheskiy Zhurnal, No 5, 1972, pp 644-653

present functional state of the nervous system. The mechanisms of the observed phenomena cannot be ascribed solely to the generalized influence of the reticular formation or to corticofungal impulses. Various neurogenic components are involved and it is through their interaction that the integral reaction of the brain is achieved.

USSR

UDC 539.32+537.311.33

BRYUKHANOV, A. A., VASYLIV, V. I., and ZAKHARCHENKO, I. G.,
Odessa State Pedagogical Institute; Chair of Physics.

"Texture and Anisotropy of Titanium Sheet Properties"

Ordzhonikidze, Tsvetnaya Metallurgiya, No 2, 1973, pp 161-163

Abstract: The correspondence between data of roentgenostructural analysis, the measuring of elastic properties, and the anisotropy of electric resistance was experimentally investigated on Ti sheet brand VTI-1. Ti sheet was found anisotropic both in relation to electric resistance and also in relation to Young modulus, while ρ and E have minimum values in the direction of rolling and maximum values in cross sectional direction. The experimentally determined dependences of Young modulus E and of the specific electric resistance on the direction in the sheet plane of titanium VTI-1 are in agreement with two functions, indicating that the curves $\rho(\beta)$ and $E(\beta)$, where β=angle between the projection of the [0001] axis on the investigated plane and the direction of measuring, change monotonously in simultaneously passing through maximum and minimum. The symmetry of $\rho(\beta)$ and $E(\beta)$ curves relative to the rolling direction of the Ti sheet indicates that the hexagonal prism of the crystal, during rolling, must incline to the right and to the left relative to the rolling direction. The measuring of anisotropy of the specific electric resistance and of the Young modulus more exactly defines the x-ray structural analysis results. One figure, three formulas, seven bibliographic references.
1/1

USSR

UDC 669.295-41:538.22.082.78

SHISHLYANNIKOV, V. F., BRYUKHANOV, A. A., STEPANENKO, Yu. A.

"Study of the Anisotropy of Magnetic Properties of Titanium Sheets"

Moscow, Zavodskaya Laboratoriya, No 11, 1972, pp 1357-1358.

Abstract: This work studies the anisotropy of the magnetic properties of sheet titanium, and develops a method for testing and analysis of textures formed in titanium sheets during their manufacture. The method is based on radio-frequency study of magnetic anisotropy of textured sheets and other materials with hexagonal latices. The error of measurements does not exceed 1%.

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USSR

UDC 513.88:513.83

BRYUKHANOV, A. K.

"Spaces $l_{\gamma M}$"

Sb. statey po mat. Chelyabinsk. gos. ped. in-t (Collection of Articles on Mathematics, Chelyabinsk State Pedagogical Institute), No 2, 1970, pp 62-74 (from Referativnyy Zhurnal -- Matematika, No 7, July 71, Abstract No 7B653, by I. Shragin)

Translation: Suppose M is an N-function (Referativnyy Zhurnal -- Matematika, 1961, Abstract No 2B405K; the author calls it a Young Function); λ is a sequence $\{\lambda_k\}$, where $\lambda_k > 0$, $k = 1, 2, \ldots$; $l_\lambda^M = \{x = \{x_k\}: \text{ as } \sum \lambda_k M(x_k) < \infty\}$; $l\,\lambda_M = \{x = \{x_k\} : \left| \sum \lambda_k x_k y_k \right| < \infty$ for any $y = \{y_k\} \in l_\lambda^N\}$, where N is an N-function complementary to M. Following the scheme adopted in the above-cited monograph by M. A. Krasnosel'skiy and Ya. B. Rutitskiy, the author considers the initial problems of the theorem of $l_{\lambda M}$ spaces (the conditions of linearity for the class l_λ^M, norm, completeness, Hölder's inequality, and conditions for embedding the classes l_λ^M and spaces $l_{\lambda M}$). A more original statement is

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USSR

BRYUKHANOV, A. K., Sb.statey po mat. Chelyabinsk. gos. ped. in-t (Collection of Articles on Mathematics, Chelyabinsk State Pedagogical Institute), No 2, 1970, pp 62-74 (from Referativnyy Zhurnal -- Matematika, No 7, July 71, Abstract No 7B653, by I. Shragin)

Theorem 3. For any N-function M and any matrix (a_{mn}), m, n = 1, 2, ..., there exists such a $\lambda=\{\lambda_n\}$ that $a_m \in l_\lambda^M$, m = 1, 2, ..., where $a_m = \{\lambda_n^{-1} a_{mn}\}$.

Abstracter's remark. As noted by the author himself, the sequence $\{\lambda_k\}$ defines the major m on the natural series N:m(k) = λ_k, k = 1, 2, ... Therefore his results (with exception of theorem 3) are not new, since the space $l_{\lambda M}$ is nothing other than the Orlicz space defined by the function M, set N, and atomic measure m. This space is part of the class of Orlicz spaces studied by Zaanen (Referativnyy Zhurnal -- Matematika, 1957, Abstract No 5736K) and by Lyuksemburg (Referativnyy Zhurnal -- Matematika, 1959, Abstract No 9239).

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USSR

UDC 513.88:513.83+517.948

BRYUKHANOV, A. K.

"Matrical Operators in the Spaces $l_{\gamma M}$"

Sb. statey po mat. Chelyabinsk. gos. ped. in-t (Collection of Articles on Mathematics, Chelyabinsk State Pedagogical Institute), No 2, 1970, pp 75-81 (from Referativnyy Zhurnal -- Matematika, No 7, July 71, Abstract No 7B654, by I. Shragin)

Translation: The results of Yu. I. Gribanova (Referativnyy Zhurnal -- Matematika, 1958, Abstract No 9994, and 1959, Abstract No 11229) on matrical operators in Orlicz coordinate spaces are extended to the spaces $l_{\lambda M}$ (Abstract No 7B653). Additionally, the following is proved:

Theorem 11. For any matrix $A = (a_{mn})$ and any Young functions $M(u)$ and $M_1(u)$, there is a sequence $\lambda = \{\lambda_k\}$ and $\lambda' = \{\lambda'_k\}$ such that the matrical operator A continuously maps the space $l_{\lambda M}$ into $l_{\lambda' M_1}$.

Abstracter's note. The statement of corollary 1 from theorem 3 ("$h_{\lambda M}$ is a true subspace of the space $l_{\lambda M}$") is generally invalid. The author himself notes (theorem 1) that if the pair $[\lambda, M]$ satisfies the Δ_2-condition, then $h_{\lambda M} = l_{\lambda M}$.

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USSR

UDC 693.542:666.97.022.1/5"324"

BRYUKHANOV, G. V., SADOVICH, M. A., SHAYKIN, B. V., Engineers

"Peculiarities of Technology of Application of Concrete at the Ust'-Ilimskaya Hydroelectric Power Plant"

Moscow, Gidrotekhnicheskoye Stroitel'stvo, No 1, Jan. 1973, pp 3-5.

Abstract: Some of the peculiarities of winter concrete operations in the construction of the Ust'-Ilimskaya Hydroelectric Power Plant are described: improvement of the technology of preparation of fillers by hydromechanization with decreased content of the fine fraction must subject to freezing, etc. Winter dry sorting of the sand-gravel mixture in combination with special hydraulic deposition is an effective means for construction in northern regions. The quality of concrete prepared in the winter with large fractions added at down to -10°C is equal to the quality of the concrete prepared in summer. A thermal resistance of the "warm" decking of 1.5 (m·hr·deg)/kcal is sufficient to produce crack-resistant structures in winter.

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Acc. Nr. AP0047692 Abstracting Service: CHEMICAL ABST. 5/70 Ref. Code UR0136

B

92428h Bases of the process for updraft sintering of lead charges. Novoselov, S. S.; Khobdabergenov, R. Zh.; Bryukhanov, N. G.; Kukharev, A. K. (USSR). *Tsvet. Metal.* 1970, 43(1), 8-13 (Russ). The updraft sintering of Pb concs. was studied. The operation required careful prepn. of the charge, esp. the maintenance of the concn. of S at 6.5-7.5 and moisture at 5.5-6.5%, addn. of recycled material 160-70 wt. % of the conc., and particle size −10 mm. Addn. of −3-mm conc. 0.8-1% of the charge was necessary to maintain 1000-1100° in the combustion zone, since the temp. could not be controlled by the S concn. only. Addn. of conc. decreased the sinter S concn, improved the S elimination, and enhanced the quality and [illegible] of sinter.

E. M. [illegible]

MT

V/1

REEL/FRAME
19791268

18

USSR

KOROBKO, V. I., BRYUKHANOV, O. N.

"Integral Method of Calculating Twisted Streams Developed Along a Cylinder"

Prikl. Vopr. Teorii Goreniya [Applied Problems from the Theory of Combustion -- Collection of Works], Kaliningrad, 1971, pp 265-284, (Translated from Referativnyy Zhurnal, Mekhanika, No 4, 1972, Abstract No 4 B302 by Yu. F. Dityakin).

Translation: A method is presented for calculating the characteristics of turbulent twisted streams developing along the surface of a cylinder in a flooded space and in wakes. It is demonstrated that calculation of the propagation of a twisted turbulent stream can be reduced to solution of equations for the laminar case with the corresponding boundary conditions with subsequent replacement of the viscosity factor by the turbulent viscosity factor. The method of integral relationships is used in the solution. Formulas are produced for the calculation of parameters of the axial thickness of loss of momentum in forward and rotating motion and the average static pressure for streams developing along the surface of a cylinder. These formulas are concluded using the results of measurement of profiles of axial and tangential velocities. Similar formulas are produced for the case of a twisted stream developing along the surface of a cylinder in a wake. 6 Biblio. Refs.

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USSR

UDC 519.95

SHEVYAKOV, N. N., BRYUKHANOV, V. A., MOISEYEV, A. A., MOISEYEV, S. G., and SULTAN

"Evaluation of the Coefficient of Technical Utilization of Complex Automatic Lines by the Method of Statistical Modeling"

Moscow, Avtomatizatsiya Operatsiy Proyektirovaniya Protsessov Mashinostroyeniya (Automation of Operations in the Design of the Processes of Machine Building), edited by V. I. Dikushin, "Nauka," 1970, pp 123-134

Abstract: One of the most important problems that arises in designing automatic lines with a complex structure is determination of the coefficient of technical utilization. Existing methods of analytical computation are based on a number of assumptions which make it possible to decrease the order of the system of differential equations involved but which introduce a divergence from the real coefficient of technical utilization. In the present article, an algorithm for investigating this coefficient for a complex automatic line is suggested. The algorithm, which is based on the method of statistical modeling on a computer (Monte-Carlo method), makes it possible to eliminate a number of assumptions and to reduce a variety of problems to a small number of general-purpose computational procedures.

USSR

SHEVYAKOV, N. N., et al., Avtomatizatsiya Operatsiy Proyektirovaniya Protsessov Mashinostroyeniya (Automation of Operations in the Design of the Processes of Machine Building), edited by V. I. Dikushin, "Nauka," 1970, pp 123-134

As an example, the statistical modeling method is applied to a single-flow, interlinked automatic line with one adjuster and which consists of n aggregates. After briefly describing the mathematical model which they adopted and the basic assumptions which it necessitated, the authors present and explain a flowchart of the modeling algorithm.

Next, on the basis of their mathematical model, they developed an algorithm for investigating the coefficient of technical utilization of an automatic line consisting of n flows, q segments, and a adjusters. A two-page flowchart of the algorithm is presented. In order to verify the algorithm as a whole, the authors considered systems for which it is possible to find precise analytical solutions. The analytical solutions and the results obtained by modeling diverged at most by one to three percent.

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USSR

UDC: 621.317.757

BRYUKHANOV, Yu. A., ZOLOTAREV, I. D.

"Effect of Parasitic Delay Line Signals on the Metrological Characteristics of an Automatic Spectrum Analyzer of the Recirculation Type"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 2 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 2), Novosibirsk, 1970, pp 131-132 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A391)

Translation: It is pointed out that the principal source of parasitic signals of a delay line of the tape-recorder type is frequency modulation which arises as a consequence of variations in the velocity of the head-tape couple. An expression is presented and analyzed for the instantaneous frequency of the playback signal. Displacement of the response pulse maximum is a result of the effect of parasitic frequency modulation. A curve is given for the relative displacement of the maximum as a function of the index of parasitic frequency modulation. This displacement causes a systematic error in frequency measurement which may be compensated by changing the time of starting the indicator sweep when the pilot signal is sent to the analyzer input. One illustration, bibliography of one title. E. L.

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USSR

UDC: 621.317.757

BRYUKHANOV, Yu. A., ZOLOTAREV, I. D.

"Investigation of the Errors of an Automatic Spectrum Analyzer of the Recirculation Type Introduced by the Frequency Shift Circuit"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. izmereniyam. T. 2 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 2), Novosibirsk, 1970, pp 133-134 (from Kib-Radiotekhnika, No 12, Dec 70, Abstract No 12A395)

Translation: The frequency shift circuit is a single-band modulator made by the phase compensation method. Because of the deviation of the phase shifter and mixers from ideal, and scatter of the transmission ratio of the channels, there are oscillations with undesirable frequencies at the modulator output (the carrier frequency and another sideband) which impair the parameters of the spectrum analyzer. Mathematical expressions are given for signal distortions, etc. together with curves for error, for metrological characteristics and so forth. It is pointed out that the requirements for precision in making the elements of the displacement circuit are determined chiefly by the permissible measurement error in determining the amplitudes of the spectral components. Three illustrations. E. L.

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USSR B

UDC 539.3

BRYUKHANOVA, YE. N.

"Nonsymmetric Problem of Thermoelasticity for a Circular Plate With Regularly Positioned Circular Openings"

Tr. Kafedry teor. i eksperim. fiz. Kaliningr. un-t (Works of the Chair of Theoretical and Experimental Physics of Kaliningrad University), Kaliningrad, 1969, pp 53-62 (from RZh-Mekhanika, No 4, Apr 70, Abstract No 4V64)

Translation: A circular isotropic plate weakened by circular openings, the centers of which lie at the vertices of a right N-gon (the number N is a factor of four) is considered. The distribution of temperature stresses is investigated under the condition that its constant temperature T_i is given on each internal curve L_i; the temperature on the external curve is equal to zero and all curves are free from external forces. The solution is divided into $N/2$ symmetric and antisymmetric problems for plates with two diametrically located openings with subsequent search for the additional stress field taking the forces arising on the boundaries of the remaining openings. The latter

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USSR

BRYUKHANOVA, YE. N., Tr. Kafedry teor. i eksperim. fiz. Kaliningr. un-t, Kaliningrad, 1969, pp 53-62

leads to an infinite system of linear algebraic equations. An example is given of the calculation of a plate with four openings; the accuracy of carrying out the boundary conditions is calculated. I. G. Aramanovich.

1/2 051 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--EFFECT OF TEMPERATURE AND A VARIABLE MAGNETIC FIELD ON THE MAGNETIC STRUCTURE OF FILMS WITH STRIPE DOMAINS -U-

AUTHOR-(02)-BRYUKHATOV, N.L., NOYEVA, M.R.

B

COUNTRY OF INFO--USSR

SOURCE--FIZ. METAL METALLOVED. 1970, 29(3), 645-6

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, MATERIALS

TOPIC TAGS--TEMPERATURE EFFECT, MAGNETIC FIELD EFFECT, MAGNETIC STRUCTURE, MAGNETIC DOMAIN STRUCTURE, FERROMAGNETIC FILM, NICKEL ALLOY, IRON, LASER LUMINESCENCE, MAGNETIC HYSTERSIS, TRANSVERSE MAGNETIC FIELD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/1309 STEP NO--UR/0126/70/029/003/0645/0646

CIRC ACCESSION NO--AP0124960
UNCLASSIFIED

2/2 051 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0124960

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PERIOD OF THE LATTICE PRODUCED BY THE FORMATION OF MAGNETIC DOMAINS IN A FERROMAGNETIC FILM (83PERCENT NI, 17PERCENT FE, THICKNESS 6500 ANGSTROM) WAS STUDIED DURING THERMAL CYCLING (MINUS 200DEGREES TO PLUS 200DEGREES) BY MEANS OF LASER LIGHT DIFFRACTION. THE BAND DOMAIN STRUCTURE REMAINED EVEN AFTER HEATING OR COOLING WITHIN ANY EXTERNAL FIELD, BUT THE PERIOD VARIED AND A HYSTERESIS OF THE DOMAIN STRUCTURE WAS FOUND. THE HYSTERESIS IN THIN FILMS WAS ALREADY MEASURABLE AT LOW TEMP. VARIATIONS. THE PERIOD WAS ALSO VARIED BY TRANSVERSE MAGNETIC FIELDS. FACILITY: MOSK. INST. INZH. ZHELEZNODOROZH. TRANSP., MOSCOW, USSR.

UNCLASSIFIED

USSR UDC /576.8.097.29:582.288/:631.547.1

METEYKO, T. Ya., and BRYUKHINA, I. P., Institute of Microbiology and Virology, Academy of Sciences Ukr SSR

"The Effect of Mycotoxins on the Carbohydrate Content in Plant Seedlings"

Kiev, Mikrobiologicheskiy Zhurnal, Vol 33, No 4, Jul/Aug 71, pp 489-492

Abstract: Changes in the content of monosaccharides, disaccharides, and total sugars in the stalks and roots of 8-day old plants of winter wheat, corn, oats, soybeans, peas, and beans under the action of fusarin and dendrodochin were studied. Toxins in amounts of 10-1500 gamma were introduced through the roots together with Knop nutrient solution. Dendrodochin had a more pronounced effect on the carbohydrate metabolism and the sugar content than fusarin. Under the effect of dendrodochin the sugar content in corn stalks increased, while decreasing in the stalks of oats. In leguminous plants dendrodochin increased the sugar content of the stalks while reducing that of the roots. It acted mainly on the content of monosaccharides in legumes and on the levels of both monosaccharides and disaccharides in corn and oats. Fusarin reduced the sugar content in wheat roots and oat stalks, while increasing it in oat roots. In amounts of 1000-1500 gamma, fusarin stimulated the carbohydrate metabolism in both the stalks and

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UDC [576.8.097.29:582.287:581.142

USSR

BRYUKHINA, I. P., and METEYKO, T. YA., Institute of Microbiology and Virology Academy of Sciences UkrSSR

"Effect of Fungal Toxins on Seed Germination and Growth of Plant Sprouts"

Kiev, Mikrobiologicheskiy Zhurnal, Vol 33, No 2, Mar/Apr 71, pp 211-214

Abstract: Experimental results are reported of study of the phytotoxic effect of Dendrodochium toxicum and Fusarium sporotrichiella. To obtain the toxins, Dendrodochium was cultivated on sterile straw, and Fusarium on sterile oats. In doses of 10-100 µg, Ditoxicum toxin inhibited the growth of oat, wheat, corn and pea sprouts. The effect of F. sporotrichiella varied with type type of plant studied: low concentrations -- 10-100 µg -- stimulated growth of wheat sprouts, while inhibiting development of oat sprouts Legumes were more resistant to the effect of mycotoxins, only higher doses -- 250 µg for Ditoxicum and 500-1000 µg for D. sporotrichiella toxin -- resulted in definite phytotoxic action. The inhibitory effect of the mycotoxins affected mostly the plant root system. Seed germination was considerably depressed by a single treatment of 50-500 µg of Dendrochium toxin and 100-1000 µg of Fusarium toxin.

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UDC 621.771.8

USSR

POLUKHIN, P. I., ZHADAN, V. T., BERKOVSKIY, V. S., FEDOSOV, B. M., and BRYUKHOV, B. N.

"An Investigation of Forming in Flange Passes during Rolling of Stainless Steel"

Moscow, Plasticheskaya Deformatsiya Metallov i Splavov, "Metallurgiya" Publishing House, No 64, 1970, pp 79-87

Translation: The results of an experimental study of the forming process during the rolling of square billets of Kh18N10T steel in open-flange passes are considered. Selection of the geometric parameters of the pass and billet is substantiated. Results are presented of an analysis of forming parameters as a function of the dimensions of the peak and the amount of roughing. Eight illustrations, one table, and five bibliographic entires.

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1/2 007 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--NQR NUCLEAR QUADRUPOLE RESONANCE SPECTRA OF ANTIMONY 121 AND ANTIMONY 123 IN R SUB3 SBX SUB2 COMPOUNDS -U-

AUTHOR-(05)-SVERGUN, V.I., BORISOV, A.YE., NOVIKOVA, N.V., BABUSHKINA, T.A., BRYUKHOVA, YE.V.

B

COUNTRY ~~OF INFO~~--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. KHIM. 1970, (2), 484-5

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--NUCLEAR RESONANCE, CHLORIDE, ANTIMONY ISOTOPE, BROMINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/1519 STEP NO--UR/0062/70/000/002/0484/0485

CIRC ACCESSION NO--AP0120300
UNCLASSIFIED

2/2 007 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0120300

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE NQR SPECTRA OF PRIME121 S3 AND PRIME123 SB WERE REPORTED FOR R SUB3 SBX SUB2 WHERE R WAS SELECTED FROM ME, ISO BU, BU, CL, PH, CIS AND TRANS CLCH:CH, AND X WAS SELECTED FROM CL AND BR. THE MEASUREMENTS WERE TAKEN AT 770EGREESK. PH SUB3 ASCL SUB2 IS ISMORPHOUS WITH PH SUB3 SBCL SUB2 AS THEIR RESP. NQR DATA ARE READILY TRANSLATABLE. FACILITY: INST. ELEMENTOORG. SOEDIN., MOSCOW, USSR.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--USE OF CHLORINE-35 NUCLEAR QUADRUPOLE RESONANCE TO STUDY THE TRANSFER OF INFLUENCE THROUGH AN ESTER BOND.-U-
AUTHOR-(05)-KORSHAK, V.V., VINOGRADOVA, S.V., VASNEV, V.A., BRYUKHOVA, YE.V., SEMIN, G.K.
COUNTRY OF INFO--USSR

SOURCE--IAV. AKAD. NAUK SSSR, SER. KHIM. 1970, (3), 681-2

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--CHLORINE ISOTOPE, NUCLEAR RESONANCE, SPECTUM, ESTER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1999/1904 STEP NO--UR/0062/70/000/003/0681/0682

CIRC ACCESSION NO--AP0123688
UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--30DEC77

CIRC ACCESSION NO--AP0123688

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE N.Q.R. SPECTRAL DATA WERE TABULATED FOR P-RC SUB6 H SUB4 O SUB2 CC SUB6 H SUB2 CL-P AND P-CLC SUB6 H SUB4 O SUB2 CC SUB6 H SUB4 R-P (R EQUALS NO SUB2, F, CL, MEO, H, ME, AC). TRANSMISSION OF THE ELECTRONIC EFFECTS THROUGH THE ESTER LINK IS MUCH MORE FACILE IN THE DIRECTION YIELDS O-C(O) THAN IN YIELDS C(O)-O DIRECTION. FACILITY: INST. ELEMENTOORG. SOEDIN., MOSCOW, USSR.

UNCLASSIFIED

Acc. Nr: AP0043732 Abstracting Service: 5/70 INTERNAT. AEROSPACE ABST. Ref. Code: UR0226

A70-23124 # **Study of structures and properties of alloys Al-Cr and Al-Fe obtained by an atomization method (Issledovanie struktur i svoistv splavov Al-Cr i Al-Fe, poluchennykh metodom raspyleniia).** A. A. Bukhovets, N. N. Barbashin, M. G. Stepanova, and I. N. Fridliander (Moskovskii Aviatsionnyi Tekhnologicheskii Institut, Moscow, USSR). *Poroshkovaia Metallurgiia*, vol. 10, Jan. 1970, p. 108-111. In Russian.

Study of the effect of alloy elements on the structure and properties of sintered alloys Al-Cr and Al-Fe made of powders obtained by atomizing the melt superheated 100 C over the liquidus. It is found that chromium addition together with a high cooling rate of the liquid phase, a high crystallization rate, and a subsequent cooling of the powder, makes it possible to produce more homogeneous aluminum alloys than those to which iron is added.

Z.W.

AL5

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REEL/FRAME
19770138

18

1/5 021 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--THE HIGHER SCHOOLS TRAIN TECHNICIANS -U-

AUTHOR--BRYUKHOVETS, B.

B

COUNTRY OF INFO--USSR

SOURCE--ZVESTIA, MAY 20, P. 3

DATE PUBLISHED--20MAY70

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES

TOPIC TAGS--EDUCATIONAL POLICY, TRAINING PROCEDURE, STUDENT ENROLLMENT, TECHNICAL INSTITUTE, ACADEMIC INSTITUTION R AND D, ADVANCED EDUCATION EXPENDITURE, ADVANCED EDUCATION QUALITY

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2/5 021 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AN0122890

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AN EXPERIMENT HAS BEEN UNDER WAY FOR SEVERAL YEARS NOW IN THE RUSSIAN REPUBLIC MINISTRY OF HIGHER AND SPECIALIZED SECONDARY EDUCATION: A SINGLE INSTITUTION TRAINS SPECIALISTS FOR BOTH HIGHER AND SECONDARY SKILLS. FOUR HIGHER EDUCATIONAL INSTITUTIONS ARE PARTICIPATING: THE VORONEZH TECHNICAL AND POLYTECHNICAL SCHOOLS, TULA POLYTECHNICAL AND NORILSK EVENING INDUSTRIAL INSTITUTE. IN ADDITION, EXPERIMENTS ARE UNDER WAY BY THE U.S.S.R. MINISTRY OF AGRICULTURE AT THE VOLOGDA AND GORSK AGRICULTURAL INSTITUTES (IN THE CITY OF OROZHONIKIDZE). SUCH COMBINED TRAINING OF ENGINEERS AND TECHNICINAS, IT SHOULD BE NOTED, IS ALREADY PRACTICED IN MANY FOREIGN COUNTRIES, NOT TO MENTION ITS EXISTENCE IN THE PAST IN RUSSIAN HIGHER SCHOOLS. FIRST YEAR DROPOUTS ARE SUBSTANTIAL EVEN IN THE BEST HIGHER EDUCATIONAL INSTITUTIONS, WHERE THE MOST WELL PREPARED YOUNG PEOPLE COMPETE FOR ADMISSION. FOR EXAMPLE, DROPOUTS LAST YEAR WERE 10.3PERCENT AT THE LENINGRAD POLYTECHNICAL INSTITUTE, 17.1PERCENT AT THE ELECTROTECHNICAL INSTITUTE AND 13.2PERCENT AT THE MINING INSTITUTE. DROPOUTS CONTINUE TO BE A PROBLEM ENEN IN THE SECOND YEAR. IT MAY ACTUALLY BE POSSIBLE, WITH SOME CHANGES IN THE CURRICULUM, TO SEND PERSONS WHO COMPLETE A SECONDARY TECHNICAL EDUCATION IN A GIVEN SPECIALTY DIRECTLY INTO THE SECOND (OR EVEN SOMETIMES THE THIRD) YEAR OF HIGHER EDUCATION. MOREOVER, IT IS POSSIBLE THAT WE CAN ACTUALLY COMBINE THE SELECTION OF AND TRAIN THE FUTURE ENGINEERS AND TECHNICIANS UNDER ONE CURRICULUM DURING THE FIRST YEARS, LATER SELECTING THE MOST WELL PREPARED FOR SUBSEQUENT HIGHER EDUCATION AND THE LESS PREPARED FOR SPECIALIZED SECONDARY EUDCATION.

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ABSTRACT/EXTRACT--THESE LATTER WOULD THEN BE ELIGIBLE FOR EDUCATION AS ENGINEERS AND COULD ENTER HIGHER EDUCATIONAL INSTITUTIONS IN THE SECOND OR THIRD YEAR, WHICHEVER WOULD BE APPROPRIATE. ALL THESE PROBLEMS HAVE BROUGHT ABOUT THE ORGANIZATION OF INTERMEDIATE TECHNICAL STUDIES DIVISIONS (I.T.S.D.). HIGHER SCHOOL DEPARTMENTS ARE ALREADY RAISING THE QUALITY OF THE TRAINING OF TECHNICIANS. EXPERIENCED INSTRUCTORS, PROFESSORS AND DOCENTS ARE TEACHING FOR THE INTERMEDIATE TECHNICAL STUDIES DIVISIONS. I.T.S.D. TEACHERS ARE THEMSELVES WORKING MORE ACTIVELY ON DISSERTATIONS; MANY ARE DOING RESEARCH. HIGHER SCHOOL DEPARTMENTS HEAD UP THE ACADEMIC AND METHODOLOGICAL WORK. STUDENT INDEPENDENCE IS FURTHER DEVELOPED BY THE LECTURE AND SEMINAR STYLE OF ORGANIZING THE I.T.S.D. UNITS. IN FACT, THE GREATER COSTS OF USING HIGHER SCHOOL INSTRUCTORS AT THE DIVISIONS IS TO SOME EXTENT MADE UP IN THIS WAY. I.T.S.D. STUDENTS CAN PARTICIPATE IN RESEARCH, ATTEND STUDENT SCIENCE CONFERENCES, ETC. THEY TAKE LABORATORY COURSES USING THE LABORATORIES OF THE HIGHER EDUCATIONAL INSTITUTIONS WITH THEIR MODERN EQUIPMENT, INSTRUMENTS AND APPARATUS. CLASSROOM SPACE IS UTILIZED SOMEWHAT MORE FULLY. WHEN WE BEGAN THE EXPERIMENT, WE WERE STILL THINKING ONLY OF ESTABLISHING A CONTINUITY IN THE EDUCATION OF TECHNICIANS AND ENGINEERS. NOW THE TULA POLYTECHNICAL AND THE GORSK AGRICULTURAL INSTITUTES HAVE DRAWN UP CURRICULUMS IN SEVERAL SPECIALTIES THAT WILL SHORTEN THE TERM OF ENGINEERING PROGRAMS BY 1 MONTHS TO TWO YEARS FOR PERSONS WHO HAVE COMPLETED A TECHNICUM.

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ABSTRACT/EXTRACT--CONSIDERING THE FIGURES CITED EARLIER AND THE COST OF ONE YEAR'S TRAINING FOR ONE STUDENT INCLUDING THE VARIOUS BENEFITS ACCORDED NIGHT SCHOOL AND CORRESPONDENCE STUDENTS FOR WORK LEAVES, TRAVEL, ETC., IT IS OBVIOUS THAT THIS REPRESENTS A POTENTIAL ECONOMY OF TENS OF MILLIONS OF RUBLES. MOST IMPORTANT, THE STATE WILL GET GOOD ENGINEERS FASTER. THE VORONEZH POLYTECHNICAL INSTITUTE CONDUCTED AN EXPERIMENT ON THE COMBINED TRAINING AT FIRST YEAR LEVEL OF HIGHER SCHOOL STUDENTS AND I.T.S.D. STUDENTS. (THE STUDENTS WERE SPECIALLY CHOSEN AND EXAMINED AND ONLY AFTERWARD COMBINED, HIGHER EDUCATIONAL INSTITUTIONS ARE, UNFORTUNATELY, GOVERNED THE EXISTING ADMISSIONS RULES AND CANNOT CNDUCT THE EXPERIMENT IN ITS PURE FORM, SO TO SPEAK). AN EXPERIMENTAL CURRICULUM WAS WORKED OUT BY THE INSTITUTE AND USED FOR ONE YEAR WITH THOSE ACCEPTED FOR THE HIGHER SCHOOL AND FOR THE I.T.S.D. THE YEAR OF COMBINED STUDY MADE POSSIBLE, FIRST, THE BRINGING UP OF TECHNICIANS' TRAINING TO A NEW LEVEL AND, SECOND, IT ENABLED WORKING GRADUATES TO ENTER AND SUCCESSFULLY COPE WITH THE SECOND YEAR OF THE HIGHER CORRESPONDENCE CURRICULUMS. I REPEAT THAT THE EXPERIENCE OF THE PAST FEW YEARS IS STILL TOO LIMITED FOR DEFINITIVE ORGAINZATIONAL AND PEDAGOGICAL CONCLUSIONS TO BE DRAWN. BUT THERE HAVE ALREADY BEEN SOME INCONTESTABLE ACHIEVEMENTS. SPECIFICALLY: MORE TECHNICIANS AT NO ADDITIONAL COSTS; LOWER COSTS PER STUDENT; SHORTER TRAINING PERIODS FOR TECHNICIANS SEEKING TO BECOME ENGINEERS; FINALLY AND MOST IMPORTANT, BETTER QUALITY SPECIALIZED SECONDARY EDUCATION. OUR MINISTRY IS STILL CARRYING ON THE EXPERIMENT AT ITS OWN EXPENSE, UNFORTUNATELY.

UNCLASSIFIED

BRYUKHOVETSKAYA, L.V.

CHEMICAL TRANS.

SINGLE-ELECTRON TRANSFER AND CHEMICAL TRANSFORMATIONS

(Conference in Rostov-on-Don)

[Article by Candidate of Chemical Sciences Z. V. Todres, Moscow, Vestnik Akademii Nauk SSSR, Russian, No 9, September 1973, pp 102-103]

A conference on the role of electron transfers in chemical reactions was held in Rostov-on-Don on 22-25 May. It was organized by the Northern Caucasus Scientific Center of the Higher School; about 40 reports were presented. Participating in the conference were the leading chemical institutes of the AS USSR and the republican academies, and also Rostov-on-Don, Moscow, Leningrad and Gorkiy universities.

Chemical reactions are usually regarded as the rupture and formation of bonds, that is, the rearrangement of the skeleton of a molecule. It is now considered, however, that the displacement of atoms or atomic arrangements is preceded by the transfer of electrons from one of the reacting molecules to the other. The study of that stage, which has become possible through the use of new instrumental methods of investigation, especially of electron paramagnetic and nuclear magnetic resonance, expands concepts of the reaction mechanism as a sequence of elementary stages known to us.

As a result of electron transfer new particles appear, not known to organic chemistry of the past. The properties of these products were examined in a number of reports. Hemoglobin, cytochrome C and other enzymes with Fe(III) after electron transfer give nonequilibrium forms in which the iron has already gone over into the state Fe(II) but the protein part still retains its previous configuration (R. M. Davydov). The transformation of 4-4'-dinitro-cis-stilbene into an anion-radical is accompanied by complete cis-trans-isomerization. Destruction of the symmetry of the molecule leads to establishment of equilibrium: 4-nitro-cis-stilbene in the presence of electron transfer gives a mixture

- 143 - JPRS 60161, 30 Dec 73

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TITLE--ROLE OF SINGLE ELECTRON TRANSFER STEPS IN REACTIONS OF ORGANIC COMPOUNDS -U-

AUTHOR-(04)-BLYUMENFELD, L.A., BRYUKHOVETSKAYA, L.V., FOMIN, G.V., SHEYN, S.M.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(4), 931-44

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TOPIC TAGS--ELECTRON, ORGANIC CHEMISTRY, CHEMICAL REACTION MECHANISM

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CIRC ACCESSION NO--AP0128582

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2/2 014 UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AP0128582
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SINGLE ELECTRON TRANSFER IN HETEROLYTIC CHEM. REACTIONS IS REVIEWED WITH 60 REFS. FACILITY: INST. KHIM. FIZ., NOVOSIBIRSK, USSR.

UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--FORMATION OF ANION RADICALS IN NUCLEOPHILIC AROMATIC SUBSTITUTION REACTIONS -U-

AUTHOR-(05)-SHEIN, S.M., BRYUKHOVETSKAYA, L.V., PISHCHUGIN, F.V., STARICHENKO, V.F., PANFILOV, V.N.

COUNTRY OF INFO--USSR

SOURCE--ZH. STRUKT. KHIM. 1970, 11(2), 243-8

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SUBJECT AREAS--CHEMISTRY

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CIRC ACCESSION NO--AP0140796

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2/2 015 UNCLASSIFIED PROCESSING DATE--04DE[illegible]

CIRC ACCESSION NO--AP0140796

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE TYPICAL REACTION OF NUCLEOPHILIC SUBSTITUTION WITH A NO. OF AROMATIC NITRO DERIVS. I (R EQUALS NO SUB2, R PRIME1 EQUALS H), R PRIME2 EQUALS F, CL, BR, NO SUB2, OME, SME, SCF SUB3, SO SUB2 ME; I (R EQUALS CL, R PRIME1 EQUALS NO SUB2), AND I (R EQUALS OME, R PRIME1 EQUALS NO SUB2). R PRIME2 EQUALS NO SUB2, CF SUB3, SO SUB2 ME, SO SUB2 CF SUB3, RESP., THE FORMATION OF ANION RADICALS WAS OBSD. (EPR). THE TRANSETHERIFICATION REACTION OF ALKYL ETHERS OF MONO AND POLYNITROPHENOLS IS.ASSOCD. WITH THE FORMATION OF ANION RADICALS FROM THESE COMPDS. THAT REMAIN IN EQUIL. WITH STARTING PRODUCTS AND SIGMA COMPLEXES. SIMILARLY, ANION RADICALS WERE OBSD. DURING THE REPLACEMENT OF HALOGEN OR NITRO SUBSITUENTS. UNDER THESE CONDITIONS NITRO COMPDS. I (R EQUALS OME OR CL) FAIL TO PRODUCE ANION RADICALS IN DETECTABLE CONCNS. FACILITY: INST. ORG. KHIM., NOVOSIBIRSK, USSR.

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USSR UDC: 621.391.2:621.396.96

[redacted], A. S., PUZENKO, A. A.

"On the Signal Spectrum in the Case of Trasverse Motion of Shadowed Reflectors"

Moscow, Radiotekhnika i Elektronika, Vol 15, No 12, Dec 70, pp 2533-2538

Abstract: The effect which reflector shadowing has on the spectrum of a radar signal is considered in the geometric optics approximation for the case of a system of reflectors in the form of N strips perpendicular to the yz-plane and of infinite extension in the Ox-direction. For the sake of simplicity in calculations, the statistical properties of all reflectors are assumed to be identical: a) the size distribution of all plates is described by the same function; b) all plates undergo random statistical independent oscillations relative to the equilibrium position y = 0 in the Oy direction; c) the two-dimensional distribution density for probability of the position of the centers of the plates is $w_2(y_1, y_1, \tau)$ (motion is assumed to be a random stationary process); d) the system of reflecting strips is a cophased array, i.e. the distance between strips is an integral multiple of half-waves. In the case of two reflectors moving crosswise of a radar beam according to a harmonic law with random initial phase, an exact expression is found for the energy spectrum. The spectrum is symmetric relative to the frequency of the incident wave,

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BRYUKHOVETSKIY, A. S., PUZENKO, A. A., Radiotekhnika i Elektronika, Vol 15, No 12, Dec 70, pp 2533-2538

and consists of an infinite series of discrete frequencies, the distance between them being twice the frequency of motion of the reflectors. The intensity of the high-frequency components decreases asymptotically in inverse proportion to the fourth power of the number of the harmonics. In conclusion the authors thank V. B. Razskazovskiy and G. P. Kulemin who brought the problem to the attention of the authors, and P. V. Bliokh for constant interest and assistance.

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USSR

UDC 681.3

BRYUKHOVICH, Ye. I.

"Algorithms for Arithmetic Operations in a Binary-Quinary Computer"

Kibernet. Tekhnika. vyp. 3 [Cybernetic Equipment, No 3 -- Collection of Works], Kiev, 1970, pp 4-25, (Translated from Referativnyy Zhurnal, Kibernetika, No 6, 1971, Abstract No 6 V581 by V. Mikheyev).

Translation: Methods are described for performance of the basic arithmetic operations in a binary-quinary machine, and considerations in favor of the selection of some algorithm are stated, based on the common cost-time criterion for evaluation. Illustrative examples are presented.

USSR

UDC 632.95

BRYUKVINA, N. M. and BELOZEROV, P. A.

"Kinetics of the Chemical Reaction of α-Naphthol with Phosgene in an Organic Solvent"

V sb. Khim. sredstva zashchity rast. (Chemical Protection of Plants -- collection of works), No 2, Moscow, 1972, pp 49-58 (from RZh-Khimiya, No 22, 25 Nov 73, Abstract No 22N513 by A. F. Grapov)

Translation: The reaction of α-$C_{10}H_7OH$ with $COCl_2CH_2Cl$ in the presence of Me_2NPh is a second order reaction, K = 1.35·10-5 m^3/mole-sec. Running the reaction in a plate reactor permits the stage of phosgenization to be combined with desorption and utilization of $COCl_2$. The number of contact devices of the plate reaction is calculated to obtain α-$C_{10}H_7OCOCl$.

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1/2 015 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--A DEVELOPER OF METALS -U-

AUTHOR--BRYULANOV, A.

B

COUNTRY OF INFO--USSR

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE ENUMERATES THE CONTRIBUTIONS MADE BY SERGEY ALEKSANDROVICH GOLOVANENKO, DOCTOR OF TECHNICAL SCIENCES, DIRECTOR OF THE INSTITUTE OF QUALITY STEELS, TO INDUSTRY. GRADUATE OF THE MOSCOW INSTITUTE OF STEEL AND ALLOYS, GOLOVANENKO IS NOW ASSOCIATED WITH THE CENTRAL SCIENTIFIC RESEARCH INSTITUTE IMENI BARDIN WHERE HE HEADS THE BIMETALS RESEARCH. ONE OF HIS RECENT CONTRIBUTIONS IS THE DEVELOPMENT OF BIMETALLIC TRACTOR PINS.

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